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# Memoirs of the Department of Agriculture in India

## No. 7. New Species of Indian Gall Midges (Itonididae)

BY

E. P. FELT, D.Sc.
State Entomologist of New York

## No. 8. New Indian Geometridae

BY

LEWIS B. PROUT, F.E.S.

## No. 9. Description of Laspeyresia stirpicola, n. sp. (Lepidoptera)

BY

E. MEYRICK, F.R.S.

With a short Note on the Life-history and Status

BY

RAI BAHADUR C. S. MISRA, B.A.

AGRICULTURAL RESEARCH INSTITUTE, PUSA

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# NEW SPECIES OF INDIAN GALL MIDGES (ITONIDIDÆ)

BY

E. P. FELT, D.Sc.,

*State Entomologist of New York.*

(Received for publication on 5th April 1926.)

The following new species are from a most interesting lot of gall midges submitted for identification by Prof. E. Ballard, Government Entomologist, Agricultural College and Research Institute, Coimbatore, India, March 22, 1922. Particular attention should be called to the remarkable *Hormomyia subaptera* and the peculiar *Schizomyia mæruæ*. The long delay in making these identifications was due to the author unexpectedly transferring his entire energies for a time to the gipsy moth work of New York State.

### Camptomyia hibisci, n. sp.

*Male*: Length 1·5 mm. Antennae a little longer than the body, sparsely haired, dark brown, with at least twenty-one segments, the fifth with a stem three-fourths the length of the cylindrical basal enlargement, which latter has a length one-fourth greater than its diameter, basally a rather thick whorl of moderately long, slender setae and sub-apically a scattering whorl of longer setae; low circumfila occur near the basal third and apically. Palpi, first segment short, sub-quadrate, the second with a length about four times its width, the third a little longer, more slender and the fourth about one-fourth longer than the third and more slender: mesonotum yellowish brown, the sub-median lines narrow, yellowish; scutellum and postscutellum yellowish; abdomen pale yellowish; genitalia fuscous; basal clasp segment rather short, broad, apically with a distinct lobe; terminal clasp segment rather long, broad, scarcely swollen near the middle and apically with a stout, somewhat recurved, chitinous spur, other structures indistinct in the preparation; halteres and legs pale yellowish; claws moderately long, stout, curved, unidentate; the pulvilli as long as the claws.

*Female*: Length 1·5 mm. Antennae extending to the third abdominal segment, rather thickly haired, yellowish brown, twenty-four sessile segments, the fifth with a length one-fourth greater than its diameter; terminal segment compound with a length three times its greater diameter and tapering somewhat irregularly to a narrowly rounded apex; mesonotum reddish brown; scutellum and post-scutellum apparently reddish brown; abdomen rather thickly haired, reddish yellow; halteres

coxae and legs pale straw; ovipositor moderately stout, with a length two-thirds of the abdomen; the terminal lobes narrowly oval and thickly setose.

Type Cecid. A 3255, N. Y. State Museum.

Received from Professor E. Ballard, March 22, 1922. Labelled 51, 6 IV '15, South India, Coimbatore, breeding in rotting stems of Hibiscus, Insectary. This species is easily distinguished from the other two Indian species of the genus described by the author by the short, sessile antennal segments of the female.

### Camptomyia morindae, n. sp.

*Male*: Length 1·75 mm. Antennae one-fourth longer than the body, thickly haired, light brown, the stems transparent, twenty segments, the fifth with a stem one and one-fourth times the length of the basal enlargement, which latter has a length about one-fourth greater than its diameter, a rather thick basal whorl of short, stout setae and a thick, sub-apical whorl of longer setae; low transverse circumfila occur at the basal third and apically; terminal segment reduced, the basal enlargement with a length about three-fourths its diameter, the reduced stem forming a narrowly conical appendage. Palpi, first segment irregularly sub-quadrate, with a length nearly twice its diameter, the second broader and longer, the third slender, with a length six times its diameter and the fourth a little shorter and more slender than the third, all sparsely set with rather short, stout setae; mesonotum dark brown; scutellum fuscous yellowish; postscutellum darker; abdomen rather thickly haired, dark yellowish brown; genitalia fuscous yellowish; basal clasp segment rather long, broad; terminal clasp segment short, swollen near the distal third, apically with a stout tooth, really a compound spine, both basal and terminal clasp segments with numerous long, rather stout setae externally; dorsal plate moderately long, broad, with broad divergent, lateral lobes, the latter with a length almost equal to the basal portion, obliquely truncate distally, the pair forming as it were the broad branches of a Y, the basal portions of the dorsal plate representing the lower part of the letter; ventral plate long, broad, nearly divided, the lobes being moderately broad, slightly wider near the middle, broadly rounded apically and sparsely setose; harpes chitinous, broad basally, slender apically; the toothed apexes somewhat recurved; halteres yellowish transparent; the legs a nearly uniform pale straw; claws rather slender, strongly curved, unidentate; the pulvilli longer than the claws.

*Female*: Length 1·5 mm. Antennae about three-fourths the length of the body, rather thickly haired, light brown, twenty-four segments, the fifth with a stem about one-fourth the length of the cylindrical basal enlargement, the latter with a length two and a half times its diameter; terminal segment more or less fused with the preceding. Palpi, the first segment sub-quadrate, with a length about twice its diameter, the second a little longer, broader, the third with a length about five times its diameter and the fourth a little longer and more slender, all

sparsely clothed with stout setae; mesonotum reddish brown; scutellum and postscutellum fuscous yellowish; abdomen mostly fuscous yellowish, the ovipositor recurved dorsally and with a length nearly equal that of the abdomen; terminal lobes narrowly oval, sparsely setose; otherwise as in the male.

Type Cecid. A 3248, New York State Museum.

The specimens were received from Professor E. Ballard under date of March 22, 1922. They were labelled 44, 22 II, 1920, Coimbatore, attacking trunk of *Morinda tinctoria*, Ballard Coll.

### Schizomyia mæruæ, n. sp.

*Female*: Length 1·5 mm. Antennae about three-fourths the length of the body, sparsely haired, light brown, 14 segments, the fifth with a length about $2\frac{2}{3}$ times its diameter, the 13th segment with a length a little greater than its diameter, the 14th globose. Palpi: first segment broadly oval, the second about $\frac{1}{2}$ longer, the third twice the length of the second, the fourth $\frac{1}{2}$ longer than the third. Mesonotum yellowish-brown, scutellum yellowish, postscutellum darker, abdomen yellowish-brown; the ovipositor rather stout basally, with a length about twice that of the abdomen, the terminal portion slender, suggesting the needlelike tip of Asphondylia though more delicate, the terminal lobes very long, slender. This species is remarkable because of the apparent absence of a chitinized ventral plate at the base of the abdomen and presents certain intermediate characters between Asphondylia and Schizomyia. Halteres and legs mostly pale straw.

Type Cecid. A3260, N. Y. State Museum.

Received from Professor E. Ballard, March 22, 1922, labelled No. 54 misc., 26 VI '17, Coimbatore, from galls on *Mœruæ arenaria*, 18, A. A., Coll.

### Asphondylia ipomœæ, n. sp.

*Female*: Length 2·25 mm. Antennae probably as long as the body, sparsely haired, dark brown, fourteen segments, the third segment with a length five times its diameter, the twelfth segment with a length two and a half times its diameter, the thirteenth with a length one-fourth greater than its diameter and the fourteenth globose. Palpi: The first segment irregularly sub-quadrate, the second rather broad, with a length three times its diameter, the third about twice the length of the second, slender; mesonotum dark slaty brown; the submedian lines sparsely haired; scutellum fuscous yellowish, postscutellum darker; abdomen dark yellowish brown; the ovipositor fuscous yellowish and about as long as the abdomen when fully extended; halteres, coxae and legs mostly fuscous yellowish; the claws moderately stout, strongly curved; the pulvilli as long as the claws.

*Exuvium*: Length 3 mm. Moderately stout, dark yellowish brown; the antennal cases extending nearly to the base of the abdomen; the wing cases to the third abdominal segment and the leg cases to the sixth abdominal segment; antennal

horns moderately stout, the curved inner edges slightly toothed, abdominal segments dorsally, each with an irregular, scattering sub-basal row of small to moderate sized teeth and a regular distal row of larger teeth; posterior segment with a sub-basal and sub-apical transverse row of spines, sparse and irregular, at each lateral posterior angle a pair of somewhat curved, stout triangular spines.

Type Cecid. A 3251, New York State Museum.

The material was received from Professor E. Ballard, March 22, 1921. It was labelled 47, Coimbatore, 25 II '22, galls on *Ipomœa staphylina*, A. G. R. Coll.

### Lasioptera eriochloa, n. sp.

*Female*: Length 1·2 mm. Antennae extending to the base of the abdomen, thickly haired, dark brown, segments apparently varying from eighteen to twenty-one, the fifth with a length about twice its diameter, the distal segment globose: Palpi, first segment short, sub-quadrate, the second a little longer, more slender, the third one-half longer than the second; mesonotum dark reddish brown; scutellum and postscutellum brownish yellow; abdomen a nearly uniform dark brown, the segments very narrowly margined posteriorly with yellowish white; ovipositor about two-thirds the length of the abdomen when extended, the apical portion of the thickened basal part with numerous rather long, closely set spines; near the apex of the distal portion there is a thick group of rather long, somewhat slender, irregularly curved, chitinous hooks; the terminal lobes narrowly oval and sparsely setose; legs mostly fuscous straw; the tibiæ and the tarsi of the posterior pair nearly black; claws long, slender, strongly curved; the pulvilli a little shorter than the claws.

Type Cecid. A 3241, N. Y. State Museum.

The specimens were received from Professor E. Ballard, March 22, 1922 accompanied by the statement that they were reared from ear heads of *Eriochloa polystachya*. They were labelled 37, Coimbatore, 11 I '22, Y. R. Rao, Coll.

### Hormomyia subaptera, n. sp.

The female described below is tentatively referred to this genus in spite of the fact that the mesonotum overhangs the head to only a moderate extent and the presence of but two low circumfila on the flagellate antennal segments. The insect is so peculiar that it is deemed advisable to give it a name although the one specimen is imperfect.

*Female*: Length 4 mm. Antennae probably shorter than the body, presumably with at least fourteen segments, the first broadly obconic, the second sub-globose, flattened basally, the third with a stem about one-fourth the length of the sub-cylindric basal enlargement, which latter has a length about three times its diameter; the fifth with a stem one-third the length of the sub-cylindric basal enlargement, which latter has a length of about two and a half times its diameter, sparse whorls of

rather coarse setae basally and sub-apically and low, rather stout circumfila at the basal third and apically, the loops being a little longer than the average distance between the points of insertion, the remaining segments wanting. Palpi, the first segment presumably sub-quadrate, the second long, slender, with a length about six times its diameter and with a few coarse setae; mesonotum dark yellowish brown; scutellum and postscutellum yellowish brown; abdomen reddish brown; ovipositor short, the lobes moderately broad, broadly rounded apically and with a length about three times the width; the rudimentary wings sub-orbicular, with a length less than 1 mm., hyaline; sub-costa apparently uniting with the margin at the distal third, the third vein springing therefrom joins the margin at the apex, the fifth at the distal third, its branch near the basal third; halteres moderately long apically narrowly oval; legs mostly dark and somewhat variably fuscous straw; the claws rather long, somewhat slender, moderately curved, simple; the pulvilli nearly as long as the claws.

Type A 3237, N. Y. State Museum.

Received from Professor E. Ballard, Coimbatore, March 22, 1922. Labelled 33, Snowdon Peak (Ootacamund), Nilgiris, 8300 feet, on grass, X, 1921, Y. R. Rao, Coll.

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## New Indian Geometridae

BY

LEWIS B. PROUT, F.E.S.

AGRICULTURAL RESEARCH INSTITUTE, PUSA

Calcutta: Government of India
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1926

# NEW INDIAN GEOMETRIDAE.

BY

LOUIS B. PROUT, F. E. S.

(Received for publication on 7th April 1926.)

## Subfam. **Hemitheinae.**

### 1. Agathia angustilimes, sp. n.

♂, 30-36 mm. Face, palpus, fillet and postorbital rim purple; crown bright green. Collar tippets and front of wing-tegulæ green, the latter otherwise purple. Body above purple, the thorax with a large central patch of green, the abdomen sometimes dark-clouded. Hindtibia not dilated. Forewing beneath with a compact flap of long scales from M over base of cell, as in *hilarata* Guen. but not quite so large.

*Forewing* apple-green, the markings purplish or light-brownish-vinaceous, finely edged with whitish, in places clouded with darker duller purple (variably according to the individual); costal border normal; basal patch small, almost straight-edged, reaching costa; median band from $\frac{2}{5}$ costa to slightly beyond middle of hind-margin, about 1 mm. wide, pretty uniform and only very slightly sinuous; terminal band in posterior half almost equally narrow, in anterior half still narrower; a narrow branch therefrom (slightly widening anteriorly) from $R^3$ to costa at nearly $\frac{4}{5}$; fringe light brownish-vinaceous.

*Hindwing* shaped about as in *hilarata*, or slightly less elongate; the purple border narrower than in that species, enclosing a similar, elongate green patch between $SC^2$ and $R^3$ and an additional, small one between $M^2$ and $SM^2$, the latter almost confluent with the ground-colour at fold; the darker reddey mixed spot in tail conspicuous, triangular, bounded with whitish on its proximal and anterior sides.

Underside much paler, similarly marked.

Pusa, Bihar, 3 February 1915 (T. Bainbrigge Fletcher), type in coll. Brit. Mus., October 1908, paratype in coll. L. B. Prout, 10 May 1914, paratype (dwarfed by breeding), bred from *Karanda* leaves (cage No. 1050), in coll. *Agric. Res. Inst., Pusa.*

I have long known ♀♀ from the Nilgiris (in coll. Tring Mus., labelled by Warren "*Agathia hilarata* var. *angustilimes*"), but have awaited the ♂ before publishing. The non-dilated hindtibia is a striking distinction from *hilarata* Guen. and *guinaria* Moore.

## Subfam. **Sterrhinae.**

### 2. Sterrha mesodela, sp. n.

♂ ♀, 18-20 mm. Face and palpus (except at base) black. Vertex whitish. Collar fuscous. Antennal joints not projecting ; ciliation in ♂ even, about 1. Thorax and abdomen tilleul-buff, above with some blackish irroration. Hindtibia in ♂ with a pair of longish spurs.

*Forewing* rather narrow, termen rather strongly oblique ; areole long, $SC^1$ from near its apex or shortly stalked beyond, $R^2$ rather before middle of DC ; tilleul-buff, finely irrorated with blackish ; cell-dot black ; lines blackish ; antemedian excurved anteriorly, very fine and weak except at costa ; median strong, though slightly irregular, placed just beyond cell-dot, mostly parallel with termen, turning slightly baseward at costa and incurved at fold ; postmedian fine, not strong, minutely punctuated on the veins, parallel with termen except for slight curves inward to costa and outward to hindmargin ; subterminal slightly sinuous, with weak shades proximally and distally ; fringe with blackish proximal spots opposite the veins.

*Hindwing* rather narrow, termen with the double sinuosity scarcely appreciable ; $SC^2$ and $R^1$ stalked to almost half their length; cell-dot rather small ; first line wanting, the rest continued, more sinuous than on forewing, the strong median incurved proximally to cell, sometimes touching its proximal side, the postmedian angled outward in front of $SC^2$ $R^1$.

Underside with the cell-dots present, though small ; otherwise unmarked.

Kashmir : Srinagar, 5,200 feet, 21-31 May 1923, 2 ♂♂, 1 ♀ ; Gandarbal, 16-27 June 1923 (T. Bainbrigge Fletcher). Type (Srinagar) in coll. Brit. Mus.

The distinguishing features as compared with *sabulosa* Prout (*Seitz Macrolep.* iv. 105) and some other obscure Palaearctic species are the accentuation of the median line and especially the presence of the hindtibial spurs in the ♂, which place it in the typical section of *Sterrha*.

### 3. Sterrha delibata, sp. n.

♂ ♀, 24-25 mm. Near *rufaria* Hb. and *consanguinaria* Led., agreeing in antennal and leg structure. Face rufous, apparently without the black admixture found in *consanguinaria* (somewhat abraded).

*Forewing* slightly shorter than in the allies ; colour nearly as in *rufaria* but more glossy, almost greasy-looking (the single ♀ much more rufous than the ♂♂) ; lines similar in position but different in expression, the median being strengthened and rather thick, the post median and subterminals weakened ; fringe with appreciable though small and weak, dark dots at ends of veins.

*Hindwing* with termen slightly more sinuous than in the allies ; stalk of $SC^2$-$R^1$ variable in length (shortest in the type, longest in the ♀) ; cell-dot sharp, rather more

elongate than in the allies; lines conformable to those of forewing; fringe as on forewing.

Underside similar, slightly more sharply marked.

Kashmir: Srinagar, 5,200 feet, June 1923 (T. Bainbrigge Fletcher). Type in coll. Brit. Mus., paratype ♂ in coll. *Agric. Res, Inst. Pusa.* allotype ♀ in coll. L.B., Prout.

### 4. Sterrha inaudax, sp. n.

♂, 19 mm. Probably nearest to *dilutaria* Hb. and *delicatula* Warr.; slightly narrower winged than both (costa of forewing slightly straighter). Antennal joints somewhat projecting, the cilia grouped in slender fascicles, the longest a little over 1. Hindtibia slender, but fringed above with long hair-scales; tarsus almost 1.

*Forewing* with small black cell-dot as in *delicatula*; lines weaker, the postmedian straighter, minutely dotted on the veins somewhat as in *sylvestraria* Hb. (*straminata* Tr.); subterminal and its shades much as in typical *dilutaria*; fringe with minute dots at vein-ends as in *delicatula*.

*Hindwing* marked much as in *dilutaria*, with minute vein-dots and fringe-dots as in *delicatula*; in the less smooth termen nearer to the latter.

Underside with the markings more or less completely reproduced, the antemedian line of forewing lost in a basal suffusion which reaches median line.

Kumaon: Muktesar, 7,000 feet, 24 April. 15 May 1923 (T. Bainbrigge Fletcher) 3 ♂♂. Type in coll. Brit. Mus.

Tring Museum has two from Dalhousie, May and June 1891.

### 5. Sterrha scelisca, sp. n.

♂, 24-26 mm. Face black, with lower extremity pale. Palpus black-mixed above. Vertex whitish. Antennal joints very slightly projecting, ciliation rather long (reaching 2), in very slender fascicles. Collar fuscous. Thorax and abdomen concolorous with wings. Foreleg partly infuscated; hindleg short, the tibia little thickened, little longer than femur, the tarsus short (less than $\frac{1}{2}$).

*Forewing* moderately elongate, apex rather acute, termen rather strongly oblique, almost straight, with the faintest suggestion of the sinuosities of *degeneraria* Hb. and allies; areole narrow, open, or closed only by point-anastomosis of $SC^1$ with $SC^{2-5}$; whitish drab, with a faint fleshy tinge; minute and inconspicuous dark irroration; a minute black cell-dot; antemdian line very weak, apparently vertical from costa, curving in cell, becoming parallel with termen; med an shade weak, not thick, placed just beyond cell-dot; postmedian less weak, placed only about 2 mm. from termen, slightly incurved between the radials and between $M^2$ and $SM^2$, slightly punctuated on the veins, with scarcely appreciable lunulation between; subterminal shades almost or alt ogether obsolete; fringe with minute dots at vein-ends.

*Hindwing* with termen almost smooth, rather strongly convex ; $SC^2$-$R^1$ moderately stalked ; cell-dot as on forewing or slightly stronger ; median extremely weak, just proximal thereto ; postmedian rather weaker than on forewing, more proximally placed, the sinuosities rather stronger ; fringe as on forewing.

Underside with hindwing slightly whiter than forewing ; both wings with cell-dot, postmedian line and generally some indication of median.

Kumaon : Muktesar, 7,000 feet, 24 April-15 May 1923 (T. Bainbrigge Fletcher), 4 ♂♂. Type in coll. Brit. Mus.

Probably more or less closely related to *indeterminata* Warr., *indecorata* Warr. and the *aversata* Linn. group ; the combination of long-ciliate antenna with weak hindleg recalls *pallidata* [ Schiff. ] more than any other species that I can call to mind, but shape and facies are quite different.

### 6. Sterrha macrospila, sp. n.

♀, 12-14 mm. Head blackish. Tongue long. Collar tinged with brown. Thorax white, mixed with blackish. Abdomen above predominantly black-brown.

*Forewing* with $SC^1$, $^5$, $^2$, $^3$, $^4$ stalked, areole wanting ; white, tinged with buff ; a slight dark mark on costa at about ⅓ ; cell-dot black, rather elongate, immediately followed distally by a broad black-brown band (somewhat mixed with light violet-plumbeous scaling), which reaches hindmargin but does not quite reach costa or termen, its proximal side slightly sinuous, its distal obliquely curved outward from $SC^5$ about to $M^1$ ; subterminal line forming the distal boundary of the band, defined distally by a very fine dark line between $SC^5$ and $M^2$, then curving inward to form two thicker pale lunules on the band itself, with a deep inward tooth on fold ; fringe whitish.

*Hindwing* with costa rather long, apex rounded off, termen rather prominent at $R^1$, on account of a slight sinus between this and $R^3$, a still fainter concavity posteriorly, sharpening the tornus ; $R^3$ and $M^1$ stalked ; concolorous with forewing ; cell-dot rather large, immediately followed by a band corresponding to that of forewing, the dark line at its proximal side rather more differentiated than on forewing.

Underside similar, the band rather more blurred.

Bombay, September 1892 (*Davidson*), type in coll. Brit. Mus.; Coimbatore, 17 October 1914 and 1 November 1914, bred from refuse in fork of tamarind trees, paratypes in coll. *Agric. Res. Inst. Pusa.* et coll. L. B. Prout.

Related to *micra* Hmpsn. except in the suppression of the areole. It might be possible to establish a genus for this group with the areole minute or wanting, but the character has also originated independently in one or two other specialised *Sterrha*. The stalking of $M^1$ of the hindwing is another occasional development which I cannot yet use as generic.

## Subfam. **Larentiinae.**

### 7. Coenotephria homophoeta, sp. n.

♀, 32 mm. Closely similar to *homophana* Hmpsn.

*Forewing* with the costal margin perhaps slightly more arched; proximal area tinged with brighter brown, the basal patch scarcely darkened; subbasal line less sinuous, anteriorly excurved, then almost straight; postmedian with the projection between fold and $SM^2$ slighter; distal area characteristically marked, the vague pale longitudinal streak of cellule 6 being replaced by a broader, shorter (longitudinally oval) and purer white spot proximal to the subterminal, and the region between $R^4$ and $M^2$ being strongly washed with rather light cinnamon; subterminal obsolescent except for two conspicuous white dots, one behind $R^3$, the other behind $M^2$.

*Hindwing* with a broader and more strongly differentiated pale area (sometimes almost clear white) distally to the postmedian.

Kashmir: Gulmarg, 8,500 feet, 17-24 July 1923. (T. Bainbrigge Fletcher.) Type in coll. Brit. Mus., paratype in coll. L. B. Prout; Yusimarg, 7,500 feet, 6-15 August 1923, (T. Bainbrigge Fletcher) paratype in coll. *Agric. Res. Inst., Pusa.*

*C. homophana* was taken with the new species at Yusimarg. The ♂ may probably reveal more structural difference.

### 8. Thera etes, sp. n.

♂ ♀, 28-33 mm. Face without cone. Palpus 1½, 2nd joint heavily clothed, 3rd joint longish-moderate. Antenna with rather long pectinations (about as in *comis* Butl.). Head and body brown, more or less tinged with reddish or fawn-colour, the body paler beneath. Fore and midtibiæ and all tarsi somewhat darkened, with pale rings at ends of joints.

*Forewing* cinnamon-brown to russet, in the paler aberrations more tinged with vinaceous-cinnamon; markings blackish but mostly slight; subbasal line extremely fine and weak, somewhat W-shaped but with the posterior arm of the latter generally shortened; cell-mark long, strong, very oblique, merged with the anteriorly equally oblique antemedian line, which is acutely angulated at hind angle of cell, incurved but excessively fine or almost obsolete in posterior half, sometimes strong again on hindmargin as a black dot; postmedian fine, almost obsolete except anteriorly, wavy but almost parallel with antemedian anteriorly, 3·5 or 4 mm. beyond it, forming a rounded lobe outward at the radials, posteriorly rather more strongly incurved than the antemedian; median area generally very finely black-marked on the veins; sometimes also with slight dark suffusion, but never forming a solid band; subapical dash obsolescent.

*Hindwing* paler, greyer, with faint traces of a strongly excurved whitish postmedian line.

*Forewing* beneath more drab, hindwing pale, both with an indistinct, distally whitish-edged postmedian line, strongly excurved to $R^3$; forewing more or less dark-shaded proximally to the postmedian.

Assam : Shillong, 5,000 feet, 2 June 1924, 1 ♀ , November 1924, 3 ♂♂, 2♀♀, including the type ♂ (T. Bainbrigge Fletcher). Type in coll. Brit. Mus., paratypes in coll. *Agric. Res. Inst., Pusa* et coll. L. B. Prout.

Smaller, more reddish and much more weakly marked than *comis* Butl. (1879) from Japan and *consimilis* Warr. (1888) from the N. W. Himalayas ; abdomen of ♂ apparently rather less slender.

### 9. Eupithecia fletcheri, sp. n.

♂, 19-20 mm. Comparable with *linariata* [ Schiff.]. Head and palpus paler, the face quite pale. Antennal ciliation about the same, or very slightly longer (nearly 1). Abdomen dorsally, except at base, almost uniformly reddish brown.

*Forewing* with the subbasal and proximal—subterminal bands less bright grown than in *linariata*, the latter band without conspicuous black maculation at the radials and with even that at the submedian fold not strong ; blackish median band straighter, the white antemedian line being more gently curved, the postmedian almost straight anteriorly (slightly oblique outward at costa), posteriorly more nearly as in *linariata* (gently incurved, then running more or less obliquely outward to hindmargin) ; cell-dot weaker ; subterminal line very fine, rather distally placed.

*Hindwing* without conspicuous pale postmedian band ; slender and rather indistinct brownish subterminal and terminal bands and faint traces of one or two others between these and cell-dot. Underside more weakly marked than in *linariata*.

Kumaon : Muktesar, 7,500 feet, 13 September 1922 (T. Bainbrigge Fletcher), type in coll. Brit. Mus., paratypes in coll. L. B. Prout (same date) and in coll. *Agric. Res. Inst., Pusa* ("September.")

### 10. Eupithecia propagata, sp. n.

♂ ♀, 18-22 mm. Head and body grey with a tinge of brown, the thorax and abdomen above (except base of abdomen) mottled with black, beneath whitish, the abdomen with a black lateral line, which is interrupted on the first few segments. Palpus about $1\frac{1}{2}$, black-mixed on outerside. Antennal ciliation of ♂ minute (scarcely over $\frac{1}{2}$).

*Forewing* with termen moderatly oblique ; areole single, long ; grey (brownish white with numerous dark, black-irrorated lines); a slight ochreous tone about M and the proximal part of $R^3$ and $M^1$, much as in *lariciata* Freyer ; cell-mark sharply black, rather narrow and elongate, almost reaching base of $R^3$; lines wavy, ill-defined in proximal region ; the subbasal and antemedians angled outward in cell ;

median and postmedian with two finer and weaker lines between them, oblique inward from costa, sharply angled subcostally, oblique outward to a second acute angle at $R^1$, thence nearly parallel with termen, though very slightly inbent, the median on M, the postmedian about fold; the median—as in other similarly marked species—touches the hinder end of the cell-mark; the postmedian is double, the outer very fine, accentuated by slight dashes on the veins; sub-terminal very fine, whitish, only feebly crenulate, weak between the medians, slightly expanded subtornally, its proximal dark shades generally stronger than its distal; longitudinal black interneural dashes commonly developed between subterminal and termen; terminal line narrowly interrupted at the veins; fringe dark-spotted opposite the veins.

*Hindwing* rather elongate costally but not exceptionally narrow; whiter than forewing except at abdominal margin, where there are a dark subbasal spot and the beginnings of lines, and distally, where a narrow dark subterminal line (or band) and a whitish subtornal dot are generally well developed, other markings generally slight, but rather variable; cell-dot almost obsolete; terminal line and fringe as on forewing.

Underside rather paler, forewing slightly suffused, hindwing clearer, both with conspicuous cell-dot and generally well marked, curved postmedian and proximal-subterminal bands; terminal line and fringe-spots rather variable in expression.

Kumaon: Muktesar, 7,500 feet (including the type ♂ and allotype ♀, in coll. Brit. Mus.) and Bhimtal to Muktesar, 5,000-6,000 feet, a good series collected by Mr. T. Bainbrigge Fletcher, Imperial Entomologist, September 1922. Also a ♀ in coll. Tring. Mus. from Kashmir Valley, 7,000 feet, 4 August 1902 (Col. Ward).

### 11. Syzeuxis heteromeces, sp. n.

♂, 19 mm. Nearest to *seminanis* Prout (*Nov. Zool.* XXXIII, 13), particularly in the small size and the possession of a well-developed areole, $SC^1$ arising rather far proximad and anastomosing very shortly with the stalk of the other subcostals, nowhere approaching C; $R^1$ from areole. Antennal pectinations rather long.

*Forewing* with termen very oblique, slightly but appreciably sinuate anteriorly and posteriorly, rather prominent at $R^3$; coloration as in *seminanis*, irroration in places rather coarse; a small, indistinct cell-dot; costal edge dotted and streaked with fuscous, the streaks long, placed at base and at origin of the two principal spots; distinguished by the form of these spots, which are oblong rather than triangular or linear, being scarcely broader at C than at their posterior ends (just behind cell-fold and at $R^2$ respectively), here well over 5mm. in width; thinner and weaker marks opposite them from fold ($SM^1$) to hindmargin, faintly connected with them by incurved antemedian and postmedian lines across the wing; a faint dark subterminal indicated in places, arising from a small costal patch; a still smaller costal spot close to apex; termen and fringe interruptedly dark, as in the allies.

*Hindwing* with the band nearly reaching costa, relatively broad, especially in posterior part, distinguishable at once by being strongly angled outward about $R^2$.

Sikkim : Turzum Tea Estate, Nagrispur, near Darjiling (O. Lindgren), type in coll. Brit. Mus., presented by the *Agric. Res. Inst., Pusa.* Also a ♂ from Sikkim and one from the Khasis in coll. Tring Mus.

## Subfam. **Geometrinæ.**

### 12. Heterolocha lonicerae, sp. n.

♂ ♀, 28-30 mm. Face slightly sloping, loose-haired below. Palpus intermediate in length between those of *phœnicotæniata* Koll. and *falconaria* Wlk. Antenna of ♂ pectinate to about the 30th joint, the branches long (as in the allies). Head and front of thorax dark olive-fuscous, base of palpus (especially in ♀) yellower ; the rest of the body dirty olivaceous, with some darker suffusion.

*Forewing* intermediate in shape between *aristomaria* Wlk. (?=*laminaria* H.-Sch.) and *falconaria* Wlk., being a trifle broader than in the latter, with the termen almost as oblique, straight, the apex acute, but not produced ; SC $^{1\cdot2}$ coincident, from stalk of SC $^{3\cdot5}$, anastomosing shortly with C, the connective bar to SC $^{3\cdot4}$ (figured by Hampson, *Faun. Ind. Moths*, iii, fig. 97) generally wanting, in the ♀ allotype, however, not only present but capturing $SC^3$ (as in a few known aberrations of the allies), so that the venation could be superficially expressed as SC $^{1\cdot3}$ stalked, their stalk arising out of that of SC $^{4\cdot5}$; $R^2$ (as in the allies) from before middle of DC ; in ♂ deep olive-buff, in ♀ generally almost lemon-yellow, in aberrations more approaching the ♂ ; costal margin at base broadly tinged with red-brown, afterwards chequered, pale and dark ; markings grey, shaded with red-brown or purple-brown, much as in *aristonaria*, the cell-ring large, oval, distinct ; antemedian line subobsolete, excepting its costal spot, behind which there appears to be an outward bend as in *aristonaria* ; apico-costal mark elongate, extending on to the fringe as a costal dot ; postmedian line almost or quite obsolete in front of $R^1$, punctiform at radials, then more continuous, at $R^1$ rather further from apex than in *falconaria*, posteriorly placed as in that species, very gently incurved and accompanied distally by indistinct shading, in the ♂ also by an ill-defined blotch between $R^3$ and $M^2$.

*Hindwing* with termen slightly less straight than in *falconaria* ; concolorous with forewing, base and costal area a little paler ; cell-spot greatly reduced, not or scarcely pupilled ; postmedian rather near it, fine but almost complete, only weakened about $R^1$, here bluntly angled, thence straight or faintly incurved ; shade distally to it complete, though generally narrow.

Underside in ♂ yellower than above, in both sexes coarsely irrorated and strigulated (except on posterior part of forewing) the strigulæ suffusing most of proximal area of forewing and proximal-costal area of hindwing ; markings strong, the clouds beyond postmedian extended, especially on forewing tornally.

Assam : Shillong, 2 ♂ ♂, 8 ♀ ♀ (T. Bainbrigge Fletcher), bred August-October 1919, the type ♂ disclosed on 16 September ; type ♂ and allotype ♀ in coll. Brit. Mus., paratypes in coll. L. B. Prout et coll. *Agric. Res. Inst., Pusa.*

Larva on honeysuckle. Pupa moderately robust, highly polished, yet minutely shagreened, leg-cases rather long, cremaster with 8 hooklets, central pair stoutest, strongly curved at tips ; red-brown, the intersegmental bands of abdomen and narrow stripes on the wing-and leg-cases light, the rest dark, often almost blackish, thorax spotted with black. In a slight net-work in loosely rolled leaf of the food-plant.

Since preparing the above description I have discovered that *cinerea* Warr. (*Nov. Zool.* iii. 320, unaccountly described as *omiza* and cited by Hampson, *Journ. Bom. Nat. Hist. Soc.* XI. 715, as *Hypocrasis*) is apparently a larger, more dark-grey, less variegated form of the same species. But as it was founded on a single ♂, dated March 1893, and has never yet been matched, I have decided to risk creating a synonym rather than leave the honeysuckle species inadequately known or refer to it under a doubtfully applicable name. I have suggested that the variation might prove seasonal, but Mr. Bainbrigge Fletcher considers this improbable.

### 13. LEPTOMIZA PARABLETA, sp. n.

♀, 44 mm. Face rufous. Palpus bright ochreous, mixed above with rufous. Vertex and front of thorax light yellow-brown ; thorax posteriorly with abdomen, more mixed with rufous ; body beneath bright ochreous.

*Forewing* rather broader than in the type species (*calcearia* Walk.), termen anteriorly less oblique than posteriorly, the teeth at $R^1$ and $R^3$ not very strong ; $SC^1$ arising out of C (*i.e.* its primitive base wanting), anastomosing with $SC^2$ ; light brown of varying shades (much as in *bilinearia* Leech but with rather copious greyish irroration), the median area yellowest, the distal suffused with pale violaceous, which becomes dominant at apex ; extreme costal edge mostly violaceous ; a weak dark cell-dot ; lines indistinctly dark, edged on their reverse sides with whitish violaceous ; antemedian very oblique outward from costa, bent at a right angle (or still more acutely) at SC, thence less oblique than termen ; postmedian slightly more oblique than termen ; fringe irregularly darkened in middle, pale violaceous at tips.

*Hindwing* with termen weakly crenulate, slightly bent at $R^3$ ; postmedian line continued medially, rather less straight than in *bilinearia ;* a fine and shadowy greyish line midway between this and termen ; the violaceous distal shading more restricted than on forewing, a moderate terminal band retaining the brown colour.

Underside rather brighter, the irroration coarser, the cell-dot of forewing and the lines of both wings sharply developed, the second line of hindwing slightly punctuated on the veins ; the whitish violaceous shade confined to an apical patch on forewing ; hindwing with small darker violaceous patches at apex and termen.

Masuri, July-October 1922 (Mackenzie). Type in coll. Brit. Mus., presented by the *Agric. Res. Inst., Pusa.*

I have for many years possessed a smaller slightly paler ♀, merely labelled " N. W. India." Very similar to *bilinearia* Leech, from W. China, possibly a race, but more variegated, more irrorated, the lines of forewing less parallel, that of hindwing more curved, etc. The venation is probably variable, as the two *bilinearia* known to me differ considerably Leech's ♂ type having $SC^2$ of the forewing anastomosing with $SC^1$ at the point where the latter leaves C, while an Ichang ♂ in the Tring Museum has $SC^1$ and $SC^2$ well separate, the former anastomosing with C.

### 14. Nychiodes languescens, sp. n.

♂ ♀, 44-45 mm. Remarkably like a rather light *palaestinensis* F. Wagner (*Iris* XXXIII. 112, t. IV) or especially—is the postmedian line—*antiquaria* Stgr. (as figured by Wagner, *l. c.*). Palpus slightly shorter and blacker.

*Forewing* with $SC^{1+2}$ coincident, not (as in *obscuraria* Vill.) stalked; the black lines obsolete, except as inconspicuous vein-dots, but with their position made prominent by accompanying fine pale lines; antemedian excurved in cell but without the posteriorly oblique pose of that of *obscuraria;* postmedian about as in the cited figure of *antiquaria.* Hindwing with suggestion of a thick, ill-defined, oblique black antemedian line from that of forewing to abdominal margin just proximally to middle, postmedian less punctiform than on forewing, scarcely bent at $R^3$, oblique outward behind fold; a very fine pale distal edging to the postmedian.

Underside as in a light *palaestinensis* but with the fine pale postmedian line rather better expressed.

Kashmir: Srinagar, July 1923 (T. Bainbrigge Fletcher). Type ♂ in coll. Brit. Mus., allotype ♀ in coll. *Agric. Res. Inst., Pusa.*

May prove a much smaller, darker form of *N. confusa* Warr. (*Nov. Zool.* IX. 367), founded on a single, rather poor ♀ from Chitral; but the termen of forewing is scarcely so oblique, the cell-spots beneath are reduced, the costal spot of postmedian line wanting. Warren's *confusa* may probably have to sink to *antiquaria* Stgr.

### 15. Abraxas diastema, sp. n.

♂, 38-43 mm. Face and palpus fuscous and blackish, the palpus at base pale and yellowish. Antenna with the joints scarcely projecting, fascicles of cilia rather over 1. Collar, patagia and tegulæ dull orange. Abdomen dull orange, with dorsal, lateral (two irregular series) and subventral black spots. Hindtibia not greatly dilated, with a slender hair-pencil in groove; hindtarsus about two third tibia.

*Forewing* shorter than in *martaria* Guen., with termen less oblique; venation normal ($SC^1$ running into C); white; markings glossy grey, slightly more brownish than the neutral grey (or faintly bluish grey) of *martaria*; cell-spot round, about

3 mm. in diameter, not appreciably cut with white on DC; an almost complete, rather broad (2-3 mm.) band proximally to it, but not quite confluent, running from costa to $SM^2$, irregularly constricted in places and succeeded by a dot at hind-margin; outer band of spots double, irregular, rather heavy, in the type predominantly confluent, in the paratype less so; postmedian costal spot broad anteriorly, tapering, usually succeeded by, or confluent with, a smaller spot on $R^1$; other (smaller) costal spots inconstant; terminal band of confluent spots filled in with black interneural dots and nearly reaching apex, in the type partly confluent in middle with the subterminal, in the paratype more separate, in either case leaving clear a somewhat oblique apical spot; the orange-mixed basal patch normal; the posterior outer one broad, but not bright, being merged in the grey bands, yet with a rather distinct, erect brown streak at its proximal side, nearly reaching fold.

*Hindwing* with costal margin not dilated at base, termen faintly waved; basal patch present, though very small; cell-spot very small (on right wing of type obsolete); antemedian band represented by a macular, inwardly oblique remnant between abdominal margin and M, strongest and brown-mixed close to margin; postmedian row of spots single on first three or four veins, double on $M^1$, double and confluent behind, here mixed with orange-brown in distal part and accompanied distally by a third grey band between abdominal margin and $M^2$; a (perhaps inconstant) subapical spot in cellule 7; terminal series slightly less confluent and more lunulate than on forewing.

Underside similarly marked but without the orange.

Assam: Cherrapunji, October 1916 (native collector). Type ♂ in coll. Brit. Mus.; paratype in coll. *Agric. Res. Inst., Pusa.*

A few small, asymmetrical or inconstant spots are not mentioned in the above description, but the two specimens do not suggest that the species is a very variable one.

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# Memoirs of the Department of Agriculture in India

## Description of Laspeyresia stirpicola, n. sp. (Lepidoptera)

BY

E. MEYRICK, F.R.S.

With a short note on the Life-history and Status

BY

RAI BAHADUR C. S. MISRA, B.A.

AGRICULTURAL RESEARCH INSTITUTE, PUSA

Calcutta: Government of India
Central Publication Branch
1926

# DESCRIPTION OF LASPEYRESIA STIRPICOLA, n. sp. (LEPIDOPTERA)

BY

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RAI BAHADUR C. S. MISRA, B.A.,

(Received for publication on 1st May 1926.)

LASPEYRESIA STIRPICOLA, n. sp.

♂♀, 12-15 mm. Head, thorax grey more or less speckled dark and pale. Palp whitish partially suffused or speckled grey. Fore wings elongate, somewhat dilated, termen somewhat obliquely rounded, dark grey, more or less whitish-speckled; costa blackish-tinged, with about eleven groups of 2-4 very fine whitish strigulæ; very oblique dark or blackish strigae from costa at about middle and two-thirds; an oblique pale blotch from dorsum beyond middle very obscurely indicated, its anterior edge limited by a suffused blackish streak, becoming obsolete towards dorsum; some irregular very obscurely leaden-metallic strigea from costa posteriorly, in ♂ obscured by a patch of whitish suffusion towards costa beyond cell; ocellus laterally edged leaden-metallic, containing three somewhat elongate black dots, above these three others less marked forming with them a rather curved series; a small dark apical spot; cilia grey with rows of white points. Hindwings dark grey, cubital hair-pecten whitish; cilia grey-whitish, suffused grey on outer half, a dark grey basal shade.

4 examples. An obscure insect, allied to *Jaculatrix*. Locality: Daltonganj.

*Life-history.* Eggs are laid in the axil of leaf-buds and larvæ tunnel into the stem reaching the pith, on which they feed. The hole of entry of the larva into the stem is quite conspicuous on account of scarlet coloured grannules of resin. The full fed larva (fig. 2) is 11-12 mm. long, 2.30-2.50 mm. broad. It has a shining dark, chocolate-brown, heavily chitinized head, with a triangular excavation in front. The mandibles are very powerful. The prothoracic dorsal plate is well chitinized and has a median longitudinal lighter streak and is armed with a few whitish, porrect hairs. The rest of the body is creamy yellow, and armed with

hairs arising from brownish tubercles. When full fed the larva makes a silken gallery and pupates in it. The pupa (figs. 6, 7) is light brown in colour, with black eyes and prominent thoracic segments. The abdominal segments have two rows of short spines near each end, the anal segment has a few short hairs.

*Parasites.* In a caterpillar collected from Daltonganj three triangulinids of Strepsiptera were discovered, two of them in the region of head and one in mesothorax. The caterpillar was cleaned in potassium hydroxide and stained with eosin. So far this is the single instance of its kind, examination of adults has not revealed any triangulinids or adult Strepsiptera.

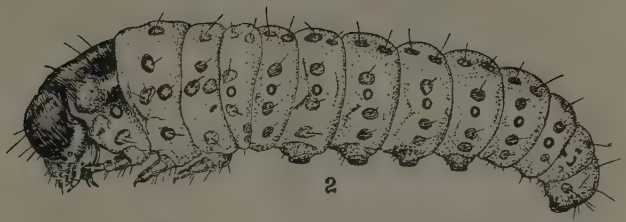
*Status.* During a visit to Daltonganj in May 1925, the abnormal presence of these lepidopterous larvæ, boring into the shoot of pollarded *Butea frondosa* (Palas), was first noticed. Practically every Palas tree in the locality was more or less affected and in some branches as many as seven borers were found. The growth is stunted, galls are produced, bark becomes rough and hard and there is considerable outflow of resinous matter and the tree becomes unfit for propagation of lac. This insect may well be regarded as a serious pest of *Butea frondosa*, a tree used extensively for lac cultivation.

## EXPLANATION OF PLATE XXIV.

*Laspeyresia stirpicola*, Mey.

| | | | |
|---|---|---|---|
| 1 | Borer | Dorsal view | ×·16 |
| 2 | Borer, immediately before pupation | Lateral view | ×·16 |
| 3 | Mandible of the borer | .... | ×·120 |
| 4-5 | Spiracles of the borer | .... | ×·300 |
| 6 | Pupa | Dorsal view | ×·16 |
| 7 | Pupa | Ventral view | ×·16 |
| 8 | Adult moth | Dorsal view | ×·12 |
| 9 | Triangulinids within the larva of the borer (much enlarged). | .... | .... |
| 10 | Triangulinid | Dorsal view | ×·300 |

1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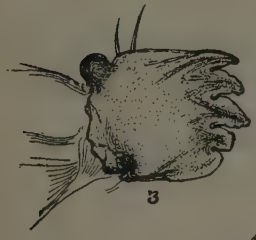
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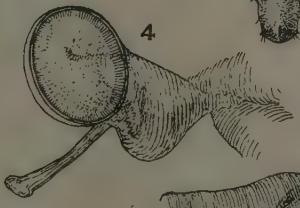
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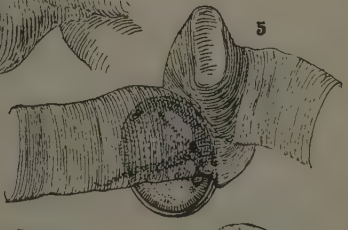
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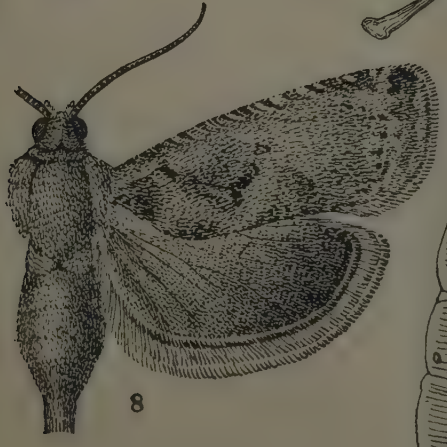
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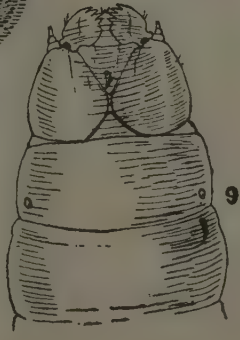
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10

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